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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial No.: 09/727,473

Group Art Unit: 1742

Inventors: Jaak Van den Syne et al.

Filed: December 4, 2000

Title: PROCESS AND APPARATUS
FOR HIGH PRESSURE GAS
QUENCHING IN AN
ATMOSPHERIC FURNACE

Examiner: Sikyin Ip

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ARGUMENT

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Margaret Handy

Sir:

This is in response to the Office Action mailed August 20, 2003.

The rejection of claims 1-7 under 35 U.S.C. 103 as being unpatentable
over U.S. Patent 5,938,866 (Andersson et al.) in view of U.S. Patent 5,104,425
(Rao et al.) is respectfully traversed.

Applicants' claimed invention requires feeding a heat treated component
containing a treating gas into a quenching chamber and feeding a quenching gas
into the quenching chamber to contact the treated component and mix with the
treating gas. See independent claim 1(b) and (c). In the quenching operation,
Applicants intentionally mix the quenching gas with the treating gas.

This is opposite to the teachings of the primary reference Andersson et al.
Andersson et al. intentionally minimize the level of contamination of the treating
gas, e.g., nitrogen, in the cooling process so as to minimize the size of the
purification columns. See column 5, lines 5-15. In contrast to Applicants'
claimed invention, Andersson et al. considers the treating gas as a contaminant

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and attempts to minimize it. Also, in the discharge from the treatment chamber, Andersson et al. intentionally prevent mixing of the treating gas and quenching gas. See column 2, lines 8-20.

The secondary reference, Rao et al., adds nothing to make up for the deficiencies of Andersson et al. as a primary reference. Rao et al. disclose composite semipermeable membranes for the separation of multicomponent gas mixtures. Nowhere does Rao et al. disclose or suggest feeding a heat treated component containing a treating gas into a quenching chamber and feeding a quenching gas into the quenching chamber to contact the treated component and mix with the treating gas as required by Applicants' claimed invention.

In comparison to the process disclosed by the primary reference Andersson et al., Applicants' claimed invention operates at significantly reduced costs. For many metals, the transformation to martensite must occur in less than a minute. Therefore, once the hardened metal starts to cool, the transformation must occur quickly. In the Andersson et al. process, one would expect most metal to require a source of hot helium in a heated chamber to separate the furnace gas before the start of the quenching operation. A heated chamber and heating helium can add significant cost to the process. Separation of the furnace gas from a quenching gas adds time to the quench cycle. Applicants' claimed invention does not require a heated chamber or heated quenching gas or added time for quench/furnace gas separation.

Applicants submit that alleged obviousness of the instantly claimed invention must be predicated on something more than it would have been obvious to try feeding a heat treated component containing a treating gas into a quenching chamber and feeding a quenching gas into the quenching chamber to contact the treated component and mix with the treating gas to arrive at Applicants' claimed process or the possibility that such particularly defined quenching conditions would have been considered in the future, having been neglected in the past. See

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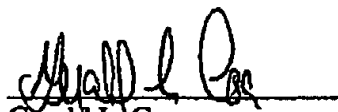
Ex parte Argabright et al. 161 USPQ 703. It is submitted that "obvious to try" is not a valid test of patentability, and patentability determinations based on that as a test are contrary to statute. See In re Mercier 515 F2d 1161, 185 USPQ 774; In re Antonie 559 F2d 618, 195 USPQ 6; In re Goodwin et al. 576 F2d 375, 198 USPQ 1; and In re Tomlinson et al. 363 F2d 928, 150 USPQ 623.

Clearly, it is only by hindsight that the Examiner could impute to the method of Andersson et al. the feeding of a heat treated component containing a treating gas into a quenching chamber and feeding a quenching gas into the quenching chamber to contact the treated component and mix with the treating gas to arrive at the instantly claimed process, and such hindsight obviousness after the invention has been made is not the proper test. See In re Carroll 601 F2d 1184, 202 USPQ 571.

It is respectfully submitted that the rejection of record is improper and that the application is in condition for allowance. Accordingly, reconsideration and allowance of all claims are courteously solicited.

A response to the Office Action mailed August 20, 2003 was due November 20, 2003. Accordingly, submitted herewith is a petition for an extension of time for three (3) months. Please charge fees/surcharge which may be required by this paper, or credit any overpayment, to Deposit Account No. 16-2440.

Respectfully submitted,



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